

## A Revision of the Japanese Spiders of the Genus *Metleucauge* LEVI, 1980 (Araneae: Tetragnathidae)

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の再検討

**Abstract** Japanese spiders of the genus *Metleucauge* LEVI, 1980 are revised. Two known species, *M. yunohamensis* (BÖSENBERG et STRAND, 1906) and *M. kompirensis* (BÖSENBERG et STRAND, 1906) are redescribed. Two new species are described under the names *M. yaginumai* and *M. chikunii*.

After an examination of many specimens from various parts of Japan, I recognized four species of the genus *Metleucauge* occurring in the country. These are two known species, *M. yunohamensis* (BÖSENBERG et STRAND, 1906) and *M. kompirensis* (BÖSENBERG et STRAND, 1906), and two new species.

Before LEVI (1980) described *Metleucauge* as a new genus, Japanese spiders of the genus were placed in *Meta*. BÖSENBERG and STRAND (1906) described two new species *Meta kompirensis* and *Meta yunohamensis* in their publication entitled "Japanische Spinnen." YAGINUMA (1958) already pointed out that these species are quite different from the other species of the genus *Meta* and should be placed in a separate genus or subgenus. When LEVI (1980) described *Metleucauge*, he transferred these species from *Meta* to *Metleucauge*.

On the other hand, BÖSENBERG and STRAND (1906) reported *Meta reticulata* (LINNÉ, 1758) from Japan. It was synonymized with *Meta segmentata* (CLERCK, 1758) by decision of the starting point of the international code of zoological nomenclature (1985, 3rd ed., Article 3), and transferred from *Meta* to *Metellina* by LEVI (1980). YAGINUMA (1986a) compared the Japanese specimens with those of *Metellina segmentata* from Europe. As the result, he confirmed that the spider recorded as *Meta segmentata* by many Japanese authors was misidentified. Besides, he pointed out that the Japanese species should be placed in *Metleucauge*. In this paper, the spider will be described as a new species under the name *Metleucauge yaginumai*.

I recognized one more new species occurring in Japan. It will be described under the name *Metleucauge chikunii*.

All the type specimens designated in this paper are deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo.

The abbreviations used in this paper are as follows: MNHN, Muséum

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National d'Histoire Naturelle, Paris; MOA, median ocular area; NSMT, National Science Museum (Nat. Hist.), Tokyo; SMF, Senckenberg Museum, Frankfurt am Main.

### Genus *Metleucauge* LEVI, 1980

*Metleucauge* LEVI, 1980, p. 44. Type species: *Metleucauge eldorado* LEVI, 1980.

**Diagnosis.** *Metleucauge* can be separated from *Meta* or *Metellina* by following features. The abdomen is oval and widest at about the middle. The epigynum is rather flat and has pockets on the sides. The male palp is rather long and its trochanter has a distal spur. The paracymbium of male palp is small.

**Description.** Carapace longer than wide. MOA as wide as long or slightly wider than long, wider behind than in front. Chelicera with 3 promarginal and 3–4 retromarginal teeth. Labium wider than long. Sternum longer than wide. Trochanter of the male palp with distal spur (Figs. 4, 12, 20, 27), cymbium caudally with projection (Figs. 3, 6, 10, 14, 18, 22, 26, 29), paracymbium small (Figs. 2, 11, 19, 25). Abdomen oval, longer than wide, widest at about the middle (Figs. 1, 7, 8, 15, 16, 23; except *M. kompirensis*, as Figs. 24, 30). Epigynum rather flattened, sclerotized, with bulge in the middle, with the pockets on the sides (Figs. 5, 13, 21, 28).

**Species.** Including two new species described in this paper, five species are known under this genus. Of these, one species is described from North America, remaining four species are known from East Asia. Four species are occurring in Japan.

**Remarks.** The placement of *Meta* and its related group, including *Metleucauge*, has been controversial. SIMON (1929) placed it in the subfamily Tetragnathinae of the family Argiopidae. Many authors placed it in the family Araneidae (ROEWER, 1942; BONNET, 1957; YAGINUMA, 1958, 1968, 1970, 1977, 1986a; PALMGREN, 1978; LEVI, 1980; ZHU, 1983; PAIK & KIM, 1985; WUNDERLICH, 1987; CHIKUNI, 1989; KIM, 1991). BRIGNOLI (1983) treated it as an independent family Metidae. Recently, it seems to be placed in the family Tetragnathidae (LOCKET, MILLIDGE & MERRETT, 1974; HEIMER & NENTWIG, 1982; ROBERTS, 1985; LEVI, 1986; PLATNICK, 1989). In this paper, I will place it in the family Tetragnathidae, agreeing with LEVI's (1986) discussion. I considered the following features are important. The male palp is elongated; it lacks a prominent radix and a median apophysis; it has a spherical tegulum. The epigynum is a relatively flat structure. Legs are held straight in resting position. However, a further examination is necessary to solve the phylogenetic problems not only about the relationship between Araneidae and Tetragnathidae but also about the taxonomic position of the other genera group or subfamily of the large family Araneidae.

### Key to the Japanese Species

- |                 |    |
|-----------------|----|
| 1. Female ..... | 2. |
| — Male .....    | 5. |

2. Epigynum with nose-shaped swelling in the middle (Fig. 21) ..... *Metleucauge chikunii* sp. nov.
- Epigynum with gently sloping bulge in the middle (Figs. 5, 13, 28) ... 3.
3. Openings of epigynum widely separated (more than a half of the width of epigynum) (Fig. 13) ..... *Metleucauge yaginumai* sp. nov.
- Openings of epigynum separated not so widely (less than a half of the width of epigynum) (Figs. 5, 28) ..... 4.
4. Epigynum with somewhat spherical bulge in the middle (Fig. 28); carapace with V-shaped dark brown marking not including a pair of light coloured spots (Fig. 24) ..... *Metleucauge kompirensis* (BÖSENBERG et STRAND, 1906)
- The middle bulge of epigynum sloping more gently (Fig. 5); carapace with V-shaped dark coloured marking including a pair of light coloured spots (Fig. 1) .... *Metleucauge yunohamensis* (BÖSENBERG et STRAND, 1906)
5. Tibia of palp longer than cymbium (tibia/cymbium 1.11–1.71; Figs. 20, 22, 27, 29); femur of palp about one and a half times as long as tibia (femur/tibia 1.49–1.71; Figs. 20, 27). Dark brown marking between eye area and median fovea not include a pair of light coloured spots (Figs. 23, 30) ..... 7.
- Tibia of palp shorter than cymbium or almost as long as cymbium (tibia/cymbium 0.85–1.02; Figs. 4, 6, 12, 14); femur of palp about two times as long as tibia (femur/tibia 1.79–2.08; Figs. 4, 12). Dark brown marking between eye area and median fovea include a pair of light coloured spots (Figs. 7, 15; rarely without such spots in *M. yaginumai*) ..... 6.
6. Tip of the sclerite between conductor and embolus point inward (Fig. 2). Basal part of conductor somewhat constricted (Fig. 2). Projection of posterior part of cymbium smaller than that of the following species (Fig. 3) ... *Metleucauge yunohamensis* (BÖSENBERG et STRAND, 1906)
- Tip of the sclerite between conductor and embolus point forward (Fig. 11). Basal part of conductor not constricted (Fig. 11). Projection of posterior part of cymbium larger than that of the preceding species (Fig. 10) .... *Metleucauge yaginumai* sp. nov.
7. Tibia of palp about one and a half times as long as cymbium (tibia/cymbium 1.33–1.71; Figs. 20, 22); femur of palp more than two times as long as cymbium (femur/cymbium 2.15–2.55; Fig. 20). In lateral view, posterior part of cymbium thicker than that of the following species (Fig. 22) .... *Metleucauge chikunii* sp. nov.
- Tibia of palp rather longer than cymbium (tibia/cymbium 1.11–1.25; Fig. 29); femur of palp about two times as long as cymbium (femur/cymbium 1.83–1.98; Fig. 27). In lateral view, posterior part of cymbium thinner than that of the preceding species (Fig. 29) ..... *Metleucauge kompirensis* (BÖSENBERG et STRAND, 1906)

*Metleucauge yunohamensis* (BÖSENBERG et STRAND, 1906)

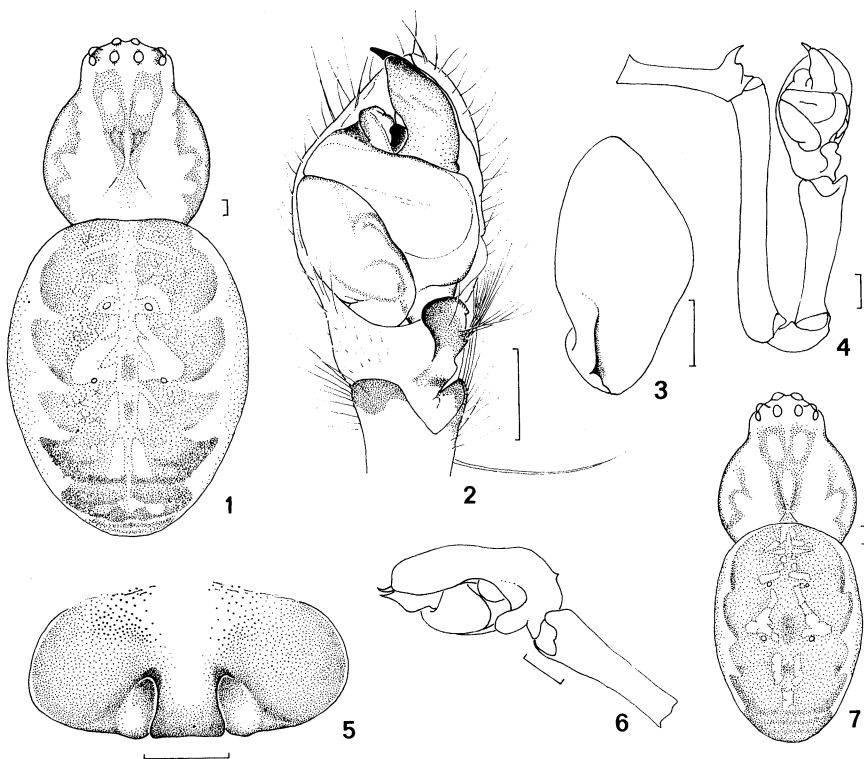
(Figs. 1-7)

*Meta yunohamensis* BÖSENBERG et STRAND, 1906, p. 181.—ROEWER, 1942, p. 917.—BONNET, 1957, p. 2805.—YAGINUMA, 1958, p. 28; 1968, p. 69; 1970, p. 660; 1977, p. 388.—ZHU, 1983, p. 33.—CHIKUNI, 1989, pp. 88, 221.

*Meta yunohamaensis*: SAITO, 1939, p. 9; 1959, p. 100.

*Metleucauge yunohamensis*: LEVI, 1980, p. 46.—PLATNICK, 1989, p. 310.—PAIK & KIM, 1985, p. 64.—YAGINUMA, 1986a, p. 125.—KIM, 1991, p. 282.

*Specimens examined.* 1♀, Nanshōnomori, Wakkanai-shi, Hokkaido, 11-VII-1990, K. KUMADA leg.; 1♀, Mt. Esaushi, Kamikawa-chō Hokkaido, 20-VI-1985, N. YASUDA leg.; 3♀♀, Rausu, Manashi-gun, Hokkaido, 23-VII-1964, T. AKIYAMA leg.; 1♂, Hanayama-mura, Kurihara-gun, Miyagi Pref., 5-V-1985, A. TANIKAWA leg.; 1♂, Lake Izunuma, Tome-gun, Miyagi Pref., 5-V-1986 (sub-adult), 8-V-1986 (adult after breeding), A. TANIKAWA leg.; 1♀, same locality, 15-VI-1986, A. TANIKAWA leg.; 1♀, Lake Hakuryūko, Nanyō-shi, Yamagata Pref., 3-V-1991, S. TAZOE leg.; 1♀2♂♂, Lake Inawashiroko, Aizuwakamatsu-shi, Fukushima Pref., 4-V-1989, A. TANIKAWA leg.; 6♀♀, Ōkizawa, Shirakawa-shi, Fukushima Pref., 24-VI-1990, A. TANIKAWA leg.; 2♀♀, Shirakawanosekiato, Shirakawa-shi, Fukushima Pref., 24-VI-1990, A. TANIKAWA leg.; 1♂, Nikko-shi, Tochigi Pref., 1-V-1983, A. TANIKAWA leg. (NSMT-Ar 2456); 2♀♀, Kata-shina-mura, Tone-gun, Gunma Pref., 3~5-VII-1981, A. TANIKAWA leg.; 1♀, Mt. Narukamiyama, Kiryū-shi, Gunma Pref., 22-V-1983, S. TAZOE leg.; 1♀, Tsukuba-shi, Ibaraki Pref., 8-V-1976, A. TANIKAWA leg.; 3♀♀, Chichibu-shi, Saitama Pref., 3-V-1987, A. TANIKAWA leg. (1♀: NSMT-Ar 2457); 12♀♀1♂, Itsukaichi-chō, Nishitama-gun, Tokyo, 17-V-1992, A. TANIKAWA leg. (1♂: NSMT-Ar 2458); 3♀♀, Hachiōji-jōshi, Hachiōji-shi, Tokyo, 21-V-1989, A. TANIKAWA leg.; 1♀, Mt. Takaosan, Hachiōji-shi, Tokyo, 15-V-1983, A. TANIKAWA leg.; 3♀♀, Minenoyakushi, Tsukui-gun, Kanagawa Pref., 3-VI-1990, A. TANIKAWA leg. (1♀: NSMT-Ar 2459); 1♀, Noba-chō, Yokohama-shi, Kanagawa Pref., 21-IV-1979, A. TANIKAWA leg.; 1♀, Maioka-chō, Yokohama-shi, Kanagawa Pref., 16-IV-1983, A. TANIKAWA leg.; 3♀♀, Mt. Enkaizan, Yokohama-shi, Kanagawa Pref., 29-IV-1983, A. TANIKAWA leg.; 1♂, Kamariya, Yokohama-shi, Kanagawa Pref., 29-IV-1987, A. TANIKAWA leg. (NSMT-Ar 2460); 2♀♀, Jinmuji, Zushi-shi, Kanagawa Pref., 1-V-1980, A. TANIKAWA leg.; 5♀♀, same locality, 20-V-1991, A. TANIKAWA leg.; 1♀, Kamakura-shi, Kanagawa Pref., 2-V-1991, A. TANIKAWA leg.; 1♀, Mt. Ōgusuyama, Miura-gun, Kanagawa Pref., M. MORI leg.; 12♀♀1♂, Iyama, Atsugi-shi, Kanagawa Pref., 27-V-1990, A. TANIKAWA leg. (1♂: NSMT-Ar 2461); 1♀, Mt. Kōbōyama, Hadano-shi, Kanagawa Pref., 3-V-1983, A. TANIKAWA leg.; 3♀♀, Fudakake, Tanzawa, Kanagawa Pref., 9-VI-1991, S. TAZOE & A. TANIKAWA leg.; 1♀, Ōkura, Tanzawa, Kanagawa Pref., 17-V-1987, A. TANIKAWA leg.; 1♀, Sugadaira-kōgen, Chīsagata-gun, Nagano Pref., 28-VII-1980, A. UYEMURA leg.; 1♀, same locality, 30-VII-1980, H. IJIMA leg.; 1♀, same locality, 4-VIII-1981, A. TANIKAWA leg.; 3♀♀, same locality, 22-VII-1984, Y. HORI leg.; 2♀♀, same locality, 24-VII-1988, A. TANIKAWA leg.; 1♀, Yunomaru-kōgen, Chīsagata-gun,



Figs. 1-7. *Metleucauge yunohamensis* Bö. et STR., 1906 — 1. Cephalothorax and abdomen of female, dorsal view. 2. Male palp, ventral view. 3. Cymbium of male palp, dorsal view. 4. Male palp. 5. Epigynum. 6. Male palp, retrolateral view. 7. Cephalothorax and abdomen of male, dorsal view. (Scales: 0.25 mm.)

Nagano Pref., 8-VIII-1983, A. TANIKAWA leg. (NSMT-Ar 2462); 2♀♀, Kirigamine, Suwa-shi, Nagano Pref., 26~27-VII-1986, S. TAZOE leg.; 2♀♀, Mt. Nyûgasayama, Suwa-gun, Nagano Pref., 23-VIII-1982, A. TANIKAWA leg.; 3♀♀, Torisawa, Ôtsuki-shi, Yamanashi Pref., 25-V-1986, A. TANIKAWA leg.; 1♀, Shimizugawa-chô, Fuji-shi, Shizuoka Pref., 2-IV-1991, S. TAZOE leg. (NSMT-Ar 2463); 3♀♀, Ogisu-keikoku, Suzuka-shi, Mie Pref., 5-V-1980, A. UYEMURA leg.; 1♀, Kokubu-chô, Suzuka-shi, Mie Pref., 3-V-1980, A. UYEMURA leg.; 2♀♀, Ashiu, Kitakuwata-gun, Kyoto Pref., 24-V-1981, T. KAMURA leg. (1♀: NSMT-Ar 2464); 2♀♀2♂♂, Ashiu, Kitakuwata-gun, Kyoto Pref., 26~27-V-1979, T. KAMURA leg. (1♂: NSMT-Ar 2465); 3♀♀, Yasaka-chô, Takeno-gun, Kyoto Pref., 27~28-V-1982, T. KAMURA leg.; 1♀, Mt. Iwawakiyama, Osaka Pref., 31-V-1959, T. YAGINUMA leg. (NSMT-Ar 260).

**Description.** Measurement (in mm). Body length ♀ 5.80-13.25, ♂ 4.30-6.95; carapace length ♀ 2.18-4.40, ♂ 2.13-3.36, width ♀ 1.75-3.60, ♂ 1.74-2.72; abdomen length ♀ 3.92-9.80, ♂ 2.69-4.40, width ♀ 2.88-7.30, ♂ 1.69-2.60. Length of legs of 1♀1♂ from Kanagawa Pref. as shown in Table 1.

Table 1. Measurement of leg segments of *Metleucauge yunohamensis* Bös. et STR., 1906 (in mm; ♀/♂).

Leg	Tarsus	Metatarsus	Tibia	Patella	Femur	Total
I	1.63/1.50	5.33/5.27	4.47/4.40	1.63/1.33	5.13/5.13	18.19/17.63
II	1.23/1.07	3.93/3.67	3.23/3.13	1.40/1.20	4.13/4.00	13.92/13.07
III	0.77/0.63	1.90/1.60	1.57/1.30	0.80/0.70	2.37/2.03	7.41/6.26
IV	0.87/0.70	3.17/2.60	2.70/2.30	0.97/0.80	3.67/3.03	11.38/9.43

Female. Carapace length/width 1.22–1.27, MOA length/width 0.89–0.95, anterior width/posterior width 0.84–0.89. Chelicera with 3 promarginal and 4 retromarginal teeth. Labium length/width 0.60–0.65, sternum length/width 1.02–1.12. Length of leg I/carapace 5.35–5.61. Abdomen length/width 1.28–1.44. Epigynum with gently sloping bulge in the middle (Fig. 5).

Male. Carapace length/width 1.22–1.24, MOA length/width 0.91–1.00, anterior width/posterior width 0.87–0.94. Chelicera with 3 promarginal and 3–4 retromarginal teeth. Labium length/width 0.69–0.81, sternum length/width 1.03–1.08. Length of leg I/carapace 5.90–7.14. Male palp (Figs. 2–4, 6): tibia slightly shorter or almost as long as cymbium (tibia/cymbium 0.86–1.02); femur more than one and a half times as long as cymbium (femur/cymbium 1.62–1.89); femur more than one and a half times as long as tibia (femur/tibia 1.79–1.92). Abdomen length/width 1.55–1.72.

Coloration and markings. Female and male. Carapace light brown, margined with dark brown, with waving dark brown marking near the margin of thoracic part, with V-shaped dark brown marking including a pair of light coloured spots between eye area and median fovea (Figs. 1, 7). Abdomen white or yellowish white, with dark coloured markings (Figs. 1, 7).

*Range.* Japan, China (ZHU, 1983), Korea (PAIK & KIM, 1985; KIM, 1991).

*Remarks.* As for the distinction from the other species, see the key to the species and the remarks of *M. yaginumai*.

### *Metleucauge yaginumai* sp. nov.

(Figs. 8–15)

*Meta reticulata*: BÖSENBERG & STRAND, 1906, p. 182. [nec *M. reticulata* (LINNÉ, 1758)]

*Meta segmentata*: YAGINUMA, 1958, p. 26; 1968, p. 69; 1970, p. 660; 1977, p. 388; 1986a, p. 124. [nec *M. segmentata* (CLERCK, 1758)]

*Metleucauge* sp.: YAGINUMA, 1986b, p. 194.—CHIKUNI, 1989, pp. 88, 222.

*Specimens examined.* Type series. Holotype. ♀, Aizankei, Kamikawa-gun, Hokkaido, 23–VII–1984, M. MATSUDA leg. (NSMT–Ar 2466). Paratypes. 3 ♀♀, Asahidake-onsen, Kamikawa-gun, Hokkaido, 30–VII–1982, S. TAZOE leg. (NSMT–Ar 2467–2469); 2 ♂♂, Shintoku-chô, Kamikawa-gun, Hokkaido, 26–VII–1981, M. MATSUDA leg. (NSMT–Ar 2470–2471); 1 ♂, same locality, 28–VII–1981, M. MATSUDA leg. (NSMT–Ar 2472); 1 ♀, Mt. Furanodake, Furano-shi, Hokkaido, 29–VII–1985, A. TANIKAWA leg. (NSMT–Ar 2473); 2 ♂♂,

Sanmata, Minamiazumi-gun Nagano Pref., 9-VII-1977, Y. CHIKUNI leg. (NSMT-Ar 2474-2475).

Other specimens examined. 1♀, Asahidake-onsen, Kamikawa-gun, Hokkaido, 5-VIII-1964, T. AKIYAMA leg.; 3♀♀, same locality, 30-VII-1982, S. TAZOE leg.; 1♀, Tennin-kyô, Hokkaido, 26-VII-1956, O. SATO leg. (NSMT-Ar 259, labelled *Meta segmentata*); 2♀♀, Mt. Furanodake, Furano-shi, Hokkaido, 29-VII-1985, A. TANIKAWA leg.; 1♀, Kamishihoro-chô, Katô-gun, Hokkaido, 1-VII-1988, M. MATSUDA leg.; 1♂, Katashina-mura, Tone-gun, Gunma Pref., 3~5-VII-1981, A. TANIKAWA leg.; 1♂, Sanmata, Minamiazumi-gun, Nagano Pref., 4-V-1977, Y. CHIKUNI leg.; 2♀♀, Kamikôchi, Minamiazumi-gun, Nagano Pref., 2-VIII-1991, S. TAZOE leg.

Specimens examined for comparison. *Metellina segmentata* (CLERCK, 1758): 2♀♀2♂♂, Odenwald, Germany, 20-IX-1954, M. GRASSHOFF leg.; 3♀♀1♂, Nidderdale Site, Scotland, United Kingdom, B. PENNINGTON leg. *Meta davidi* SCHENKEL, 1963: Holotype ♀ (MNHN B1064), Schensi, China, 1873.

*Description.* Measurement (in mm). Body length ♀ 7.80-11.00, ♂ 5.13-6.33; carapace length ♀ 3.07-3.84, ♂ 2.40-3.24, width ♀ 2.47-3.20, ♂ 1.93-2.60; abdomen length ♀ 5.60-7.60, ♂ 3.36-3.90, width ♀ 3.53-5.20, ♂ 1.69-2.20. Length of legs of holotype ♀ and paratype 1♂ from Hokkaido as shown in Table 2.

Table 2. Measurement of leg segments of *Metleucauge yaginumai* sp. nov. (in mm; ♀/♂).

Leg	Tarsus	Metatarsus	Tibia	Patella	Femur	Total
I	1.67/1.67	5.33/5.67	4.67/4.83	1.67/1.63	5.20/5.57	18.54/19.37
II	1.30/1.23	3.97/4.33	3.53/3.83	1.47/1.43	4.30/4.57	14.57/15.39
III	0.87/0.80	2.03/2.13	1.67/1.73	0.93/0.83	2.60/2.57	8.10/8.06
IV	1.00/0.97	3.23/3.30	2.90/2.97	1.03/0.97	3.83/3.70	11.99/11.91

Female. Carapace length/width 1.18-1.28, MOA length/width 0.89-0.94, anterior width/posterior width 0.83-0.89. Chelicera with 3 promarginal and 4 retromarginal teeth. Labium length/width 0.65-0.94, sternum length/width 1.02-1.08. Length of leg I/carapace 5.39-5.80. Abdomen length/width 1.29-1.58. Epigynum with gently sloping bulge in the middle (Fig. 13); openings separated more than a half of the width of the epigynum (Fig. 13).

Male. Carapace length/width 1.22-1.31, MOA length/width 0.94-1.00, anterior width/posterior width 0.83-0.90. Chelicera with 3 promarginal and 3-4 retromarginal teeth. Labium length/width 0.79-0.86, sternum length/width 1.01-1.07. Length of leg I/carapace 5.83-6.40. Male palp (Figs. 10-12, 14): tibia slightly shorter than cymbium (tibia/cymbium 0.85-0.92); femur more than one and a half times as long as cymbium (femur/cymbium 1.63-1.85); femur almost two times as long as tibia (femur/tibia 1.91-2.08); tip of the sclerite between conductor and embolus point forward (Fig. 11). Abdomen length/width 1.57-1.81.

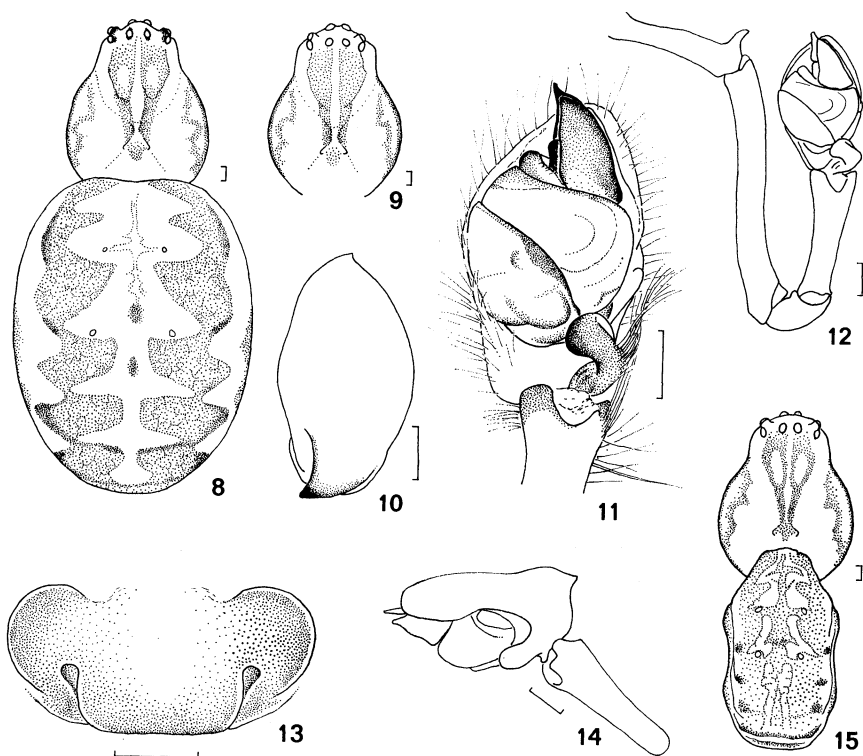
Coloration and markings. Female and male. Carapace light brown, margined with dark brown, with waving dark brown marking near the margin of thoracic part, with V-shaped dark brown marking including a pair of light

coloured spots between eye area and median fovea (Figs. 8, 15), rarely without a pair of light coloured spots (Fig. 9). Abdomen white or yellowish white, with dark clouded markings (Figs. 8, 15).

*Range.* Japan.

*Remarks.* This species resembles *M. yunohamensis* BÖSENBERG et STRAND, 1906, but can be easily distinguished by the following points. The openings of the epigynum are widely separated in *M. yaginumai* (Fig. 13; more than a half of the width of the epigynum), but they are more closely situated in *M. yunohamensis* (Fig. 5; within a half of the width of the epigynum). The tip of the sclerite between conductor and embolus of male palp points forward in *M. yaginumai* (Fig. 11), but it points inward in *M. yunohamensis* (Fig. 2). The conductor of male palp is basally rather constricted in *M. yunohamensis* (Fig. 2), but it is not constricted and its inner outline is almost straight in *M. yaginumai* (Fig. 11). As for the distinction from the other species, see the key to the species.

*Etymology.* Named after Dr. Takeo YAGINUMA, Osaka.



Figs. 8-15. *Metleucauge yaginumai* sp. nov. — 8. Cephalothorax and abdomen of female, dorsal view. 9. Cephalothorax of female, dorsal view. 10. Cymbium of male palp, dorsal view. 11. Male palp, ventral view. 12. Male palp. 13. Epigynum. 14. Male palp, retrolateral view. 15. Cephalothorax and abdomen of male, dorsal view. (Scales: 0.25 mm.)



***Metleucauge chikunii* sp. nov.**

(Figs. 16–23)

*Metleucauge kompirensis*: CHIKUNI, 1989, pp. 88, 221 [nec *M. kompirensis* (BÖSENBERG et STRAND, 1906)].

*Specimens examined.* Type series. Holotype ♀, Funaura, Iriomotejima Is., Okinawa Pref., 1–V–1990, A. TANIKAWA leg. (NSMT–Ar 2476). Allotype: ♂, same data as for the holotype (NSMT–Ar 2477). Paratypes: 1 ♀, Kiyotaki-shinhosoo-chô, Nikko-shi, Tochigi Pref., 13–VIII–1990, A. TANIKAWA leg. (NSMT–Ar 2478); 1 ♂, Misato-mura, Minamiazumi-gun, Nagano Pref., 9–VIII–1990, A. TANIKAWA leg. (NSMT–Ar 2479); 1 ♀, Mt. Kuniwari-dake, Yakushima Is., Kagoshima Pref., 15–VII–1990, A. TANIKAWA leg. (NSMT–Ar 2480); 1 ♂, same data as for the holotype (NSMT–Ar 2481); 2 ♀ ♀, Funaura, Iriomotejima Is., Okinawa Pref., 26–VII–1991, A. TANIKAWA leg. (NSMT–Ar 2482–2483).

Other specimens examined. 7 ♀ ♀, Kiyotaki-shinhosoo-chô, Nikko-shi, Tochigi Pref., 13–VIII–1990, A. TANIKAWA leg.; 4 ♀ ♀, Tôshô-gû, Nikko-shi, Tochigi Pref., 13–VIII–1990, A. TANIKAWA leg.; 2 ♀ ♀, Kominehara, Kanumashi, Tochigi Pref., 12–VIII–1990, A. TANIKAWA leg.; 1 ♀, Hodaka-chô, Minamiazumi-gun, Nagano Pref., 8–VIII–1990, A. TANIKAWA leg.; 8 ♀ ♀, Susado, Minamiazumi-gun, Nagano Pref., 7–VIII–1990, A. TANIKAWA leg.; 5 ♀ ♀, Misato-mura, Minamiazumi-gun, Nagano Pref., 9–VIII–1990, A. TANIKAWA leg.; 4 ♀ ♀, Ogisu-keikoku, Suzuka-shi, Mie Pref., 13–VIII–1981, A. UYEMURA leg.; 3 ♀ ♀, Yakusugi-land, Yakushima Is., Kagoshima Pref., 16–VII–1990, A. TANIKAWA leg.; 1 ♀, Mt. Kuniwaridake, Yakushima Is., Kagoshima Pref., 15–VII–1990, A. TANIKAWA leg.; 2 ♀ ♀, Funaura, Iriomotejima Is., Okinawa Pref., 26–VII–1991, A. TANIKAWA leg.; 2 ♀ ♀ 1 ♂, Wulai, Taipei-xian, Taiwan, 30–VII–1977, H. YOSHIDA leg.; 1 ♀, Wulai, Taiwan, 12–X–1989, H. ONO leg. (NSMT–Ar 2497); 1 ♀, Nanshan-xi, Taiwan, 28–X–1989, H. ONO leg. (NSMT–Ar 2498); 2 ♂ ♂, Benbu-xi, Nantao-xian, Taiwan, 2–IV–1979, H. YOSHIDA leg.; 1 ♀, Taoyuan, Hsien, Taiwan, 9–XI–1989, T. YAMASAKI leg.

*Description.* Measurement (in mm). Body length ♀ 7.50–11.56, ♂ 6.40–8.10; carapace length ♀ 3.32–4.55, ♂ 3.36–4.15, width ♀ 2.70–3.60, ♂ 2.64–3.30; abdomen length ♀ 4.55–6.75, ♂ 3.72–4.60, width ♀ 3.20–5.20, ♂ 1.76–2.95. Length of legs of holotype ♀ and allotype ♂ as shown in Table 3.

Table 3. Measurement of leg segments of *Metleucauge chikunii* sp. nov. (in mm; ♀/♂).

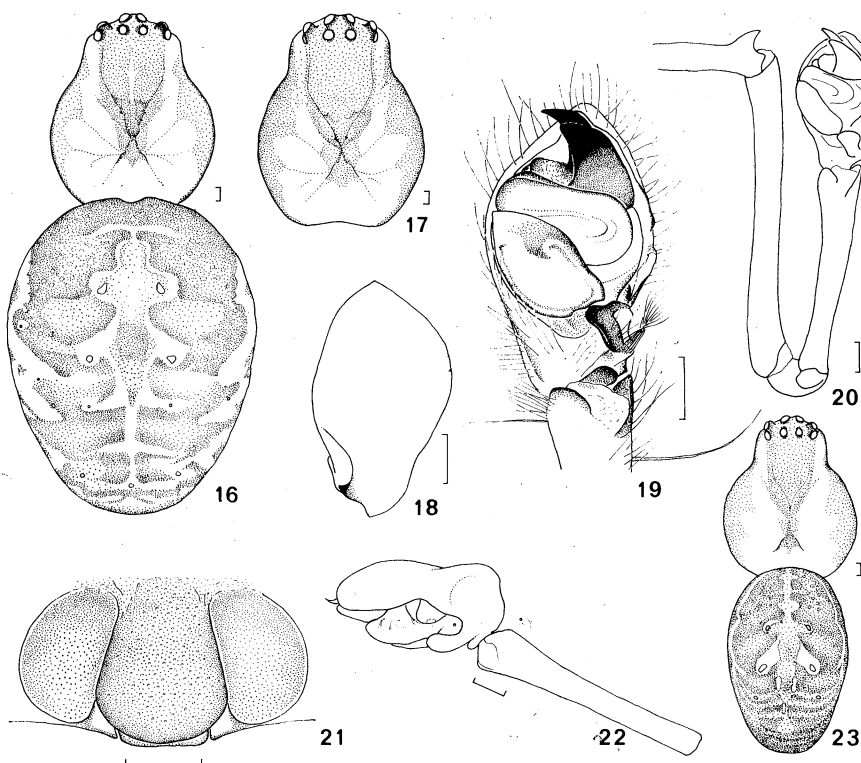
Leg	Tarsus	Metatarsus	Tibia	Patella	Femur	Total
I	2.40/2.20	8.20/7.30	6.90/6.30	2.30/1.80	8.00/7.20	27.80/24.80
II	1.80/1.50	6.30/5.30	5.00/4.50	2.00/1.60	6.30/5.50	21.40/18.40
III	1.10/0.90	3.30/2.55	2.40/1.95	1.20/0.95	3.75/2.95	11.75/9.30
IV	1.25/0.95	4.95/3.80	4.10/3.30	1.40/1.00	5.60/4.35	17.30/13.40

Female. Carapace length/width 1.20–1.26, MOA length/width 0.94–1.00, anterior width/posterior width 0.86–0.90. Chelicera with 3 promarginal and 4

retromarginal teeth. Labium length/width 0.64–0.74, sternum length/width 1.02–1.26. Length of leg I/carapace 5.55–6.47. Abdomen length/width 1.30–1.42. Epigynum with nose-shaped swelling in the middle (Fig. 21).

Male. Carapace length/width 1.23–1.27, MOA length/width 0.92–1.03, anterior width/posterior width 0.90–0.93. Chelicera with 3 promarginal and 4 retromarginal teeth. Labium length/width 0.82–0.89, sternum length/width 1.02–1.15. Length of leg I/carapace 6.29–7.29. Male palp (Figs. 18–20, 22): tibia about one and a half times as long as cymbium (tibia/cymbium 1.33–1.71); femur more than two times as long as cymbium (femur/cymbium 2.15–2.55); femur about one and a half times as long as tibia (femur/tibia 1.49–1.61). Abdomen length/width 1.56–2.11.

Coloration and markings. Female and male. Carapace light brown, margined with dark brown (Figs. 16–17, 23); with dark brown marking between eye area and median fovea (Figs. 17, 23), this marking often includes light coloured median line (Fig. 16). Abdomen white, with dark grey markings (Figs. 16, 23).



Figs. 16–23. *Melleucauge chikunii* sp. nov. — 16. Cephalothorax and abdomen of female, dorsal view. 17. Cephalothorax of female, dorsal view. 18. Cymbium of male palp, dorsal view. 19. Male palp, ventral view. 20. Male palp. 21. Epigynum. 22. Male palp, retrolateral view. 23. Cephalothorax and abdomen of male, dorsal view. (Scales: 0.25 mm.)

*Range.* Japan, Taiwan.

*Remarks.* This species resembles *M. eldorado* LEVI, 1980, but can be distinguished from the latter by the following points. The epigynum of *M. chikunii* has a nose-shaped swelling in the middle (Fig. 21), but that of *M. eldorado* has a gently sloping bulge in the middle (LEVI, 1980, Figs. 137–138). The shapes of the sclerites between conductors and emboli of the male palpi are also different from each other (Fig. 19; LEVI, 1980, Figs. 146–150). As for the discrimination from other Japanese species, see the key to the species.

*Etymology.* Named after Mr. Yasunosuke CHIKUNI, Nagano.

***Metleucauge kompirensis* (BÖSENBERG et STRAND, 1906)**

(Figs. 24–30)

*Meta kompirensis* BÖSENBERG et STRAND, 1906, p. 181.—FOX, 1938, p. 366.—ROEWER, 1942, p. 914.—BONNET, 1957, p. 2787.—YAGINUMA, 1958, p. 28; 1968, p. 69; 1970, p. 659; 1977, p. 388.—ZHU, 1983, p. 32.

*Meta vena* DÖNITZ et STRAND in BÖSENBERG & STRAND, 1906, p. 382.—ROEWER, 1942, p. 916.—BONNET, 1957, p. 2805.

*Metleucauge kompirensis*: LEVI, 1980, p. 46.—PAIK & KIM, 1985, p. 64.—YAGINUMA, 1986, p. 124.—PLATNICK, 1989, p. 310.—KIM, 1991, p. 282.

*Specimens examined.* Type series. Syntypes: 1♀ 1 juv., Kompira, Saga, W. DÖNITZ leg. (SMF 3978).

Other specimens examined. 1♀ 3♂♂, Ōkizawa, Shirakawa-shi, Fukushima Pref., 24–VI–1990, A. TANIKAWA leg. (2♂♂: NSMT–Ar 2484–2485); 1♀, Mt. Nakimushiyama, Nikko-shi, Tochigi Pref., 14–VIII–1990, A. TANIKAWA leg.; 1♀, Kiyotaki, Nikko-shi, Tochigi Pref., 13–VIII–1990, A. TANIKAWA leg.; 3♀♀, Kominehara, Kanuma-shi, Tochigi Pref., 12–VIII–1990, A. TANIKAWA leg.; 11♀♀ 2♂♂, Iyama, Atsugi-shi, Kanagawa Pref., 27–V–1990, A. TANIKAWA leg. (2♀♀ 2♂♂: NSMT–Ar 2486–2489); 1♀, Rendaiji, Shimoda-shi, Shizuoka Pref., 14–VIII–1981, A. TANIKAWA leg.; 1♀, Yunomaru-kôgen, Chûsagata-gun, Nagano Pref., 8–VIII–1983, A. TANIKAWA leg. (NSMT–Ar 2490); 2♀♀, Hodaka-chô, Minamiazumi-gun, Nagano Pref., 8–VIII–1990, A. TANIKAWA leg. (1♀: NSMT–Ar 2491); 1♀, Susado, Minamiazumi-gun, Nagano Pref., A. TANIKAWA leg.; 1♀, Hira, Siga Pref., 4–VIII–1954, T. YAGINUMA leg. (NSMT–Ar 256); 1♀, Hirogawara, Kyoto-shi, Kyoto Pref., 16–VIII–1981, T. KAMURA leg.; 1♂, Kibune, Kyoto-shi, Kyoto Pref., 17–VI–1979, T. KAMURA leg. (NSMT–Ar 2492); 1♀, Ogisukeikoku, Suzuka-shi, Mie Pref., 13–VIII–1981, A. UYEMURA leg.; 6♀♀, Kurumatsukuri, Ibaraki-shi, Osaka Pref., 20–VI–1992, T. KAMURA leg. (1♀: NSMT–Ar 2493); 2♀♀, Shirotaniunsui-kyô, Yakushima Is., Kagoshima Pref., 18–VII–1990, A. TANIKAWA leg.

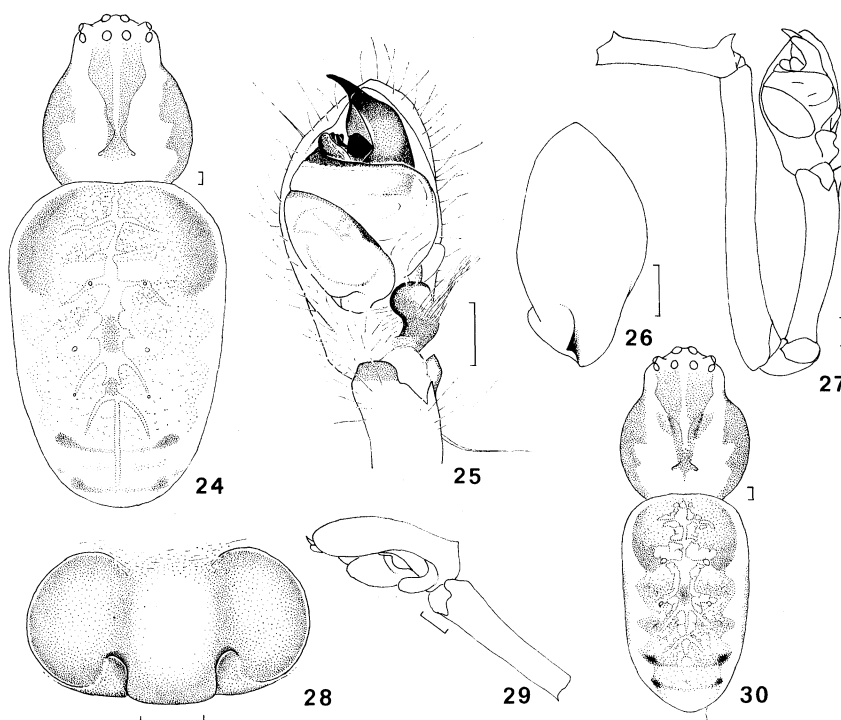
*Description.* Measurement (in mm). Body length ♀ 9.80–13.75, ♂ 7.40–12.00; carapace length ♀ 4.15–4.70, ♂ 3.34–5.27, width ♀ 3.45–3.75, ♂ 2.72–4.33; abdomen length ♀ 6.07–9.70, ♂ 4.60–7.40, width ♀ 3.67–7.10, ♂ 2.55–4.00. Length of legs of 1♀ from Osaka Pref. and 1♂ from Fukushima Pref. as shown in Table 4.

Table 4. Measurement of leg segments of *Metleucauge kompirensis* Bös. et STR., 1906 (in mm; ♀/♂).

Leg	Tarsus	Metatarsus	Tibia	Patella	Femur	Total
I	2.00/2.15	7.80/7.95	5.95/6.10	2.10/1.90	7.40/7.35	25.25/25.45
II	1.45/1.40	5.45/5.45	4.20/4.20	1.80/1.60	5.65/5.40	18.55/18.05
III	0.95/0.80	2.45/2.35	1.90/1.75	1.10/0.90	2.90/2.70	9.30/8.50
IV	1.05/0.95	4.15/3.90	3.60/3.25	1.30/1.00	4.80/4.30	14.90/13.40

Female. Carapace length/width 1.19–1.20, MOA length/width 0.94–1.00, anterior width/posterior width 0.85–0.86. Chelicera with 3 promarginal and 4 retromarginal teeth. Labium length/width 0.63–0.71, sternum length/width 1.04–1.13. Length of leg I/carapace 5.54–6.08. Abdomen length/width 1.34–1.65. Epigynum with somewhat spherical bulge in the middle (Fig. 28).

Male. Carapace length/width 1.20–1.26, MOA length/width 0.96–1.00, anterior width/posterior width 0.83–0.88, Chelicera with 3 promarginal and 4



Figs. 24–30. *Metleucauge kompirensis* Bös. et STR., 1906 — 24. Cephalothorax and abdomen of female, dorsal view. 25. Male palp, ventral view. 26. Cymbium of male palp, dorsal view. 27. Male palp. 28. Epigynum. 29. Male palp, retrolateral view. 30. Cephalothorax and abdomen of male, dorsal view. (Scales: 0.25 mm.)

retromarginal teeth. Labium length/width 0.74–0.91, sternum length/width 1.03–1.13. Length of leg I/carapace 5.31–6.84. Male palp (Figs. 25–27, 29): tibia longer than cymbium (tibia/cymbium 1.11–1.25); femur almost two times as long as cymbium (femur/cymbium 1.83–1.98); femur more than one and a half as long as tibia (femur/tibia 1.59–1.71). Abdomen length/width 1.67–1.91.

Coloration and markings. Female and male. Carapace light brown, margined with dark brown, with V-shaped dark brown marking between eye area and median fovea (Figs. 24, 30). Abdomen white or yellowish white, with dark coloured markings (Figs. 24, 30); rarely without any marking.

*Range.* Japan, China (FOX, 1938; ZHU, 1983), Korea (PAIK & KIM, 1985; KIM, 1991).

*Remarks.* This species can be easily separated from the other species of the genus by its general appearance. As for the further distinction, see the key to the species.

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### 摘 要

日本産の *Metleucauge* オオドヨウグモ属のクモ類について、各地から得られた標本をもとに再検討した結果、4種の生息を確認した。2既知種、*M. yunohamensis* (BÖSENBERG et STRAND, 1906) メガネドヨウグモおよび *M. kompirensis* (BÖSENBERG et STRAND, 1906) タニマノドヨウグモについて再記載し、*M. yaginumai* sp. nov. キタドヨウグモおよび *M. chikunii* sp. nov. チクニドヨウグモ (新称) の2新種を記載した。

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